

Credit Market Research

Fitch Corporate Bond Default Study A Decade in Review

Analysts

Stephanie K. Mah
1 212 908-0884
stephanie.mah@fitchratings.com

Mariarosa Verde
1 212 908-0791
mariarosa.verde@fitchratings.com

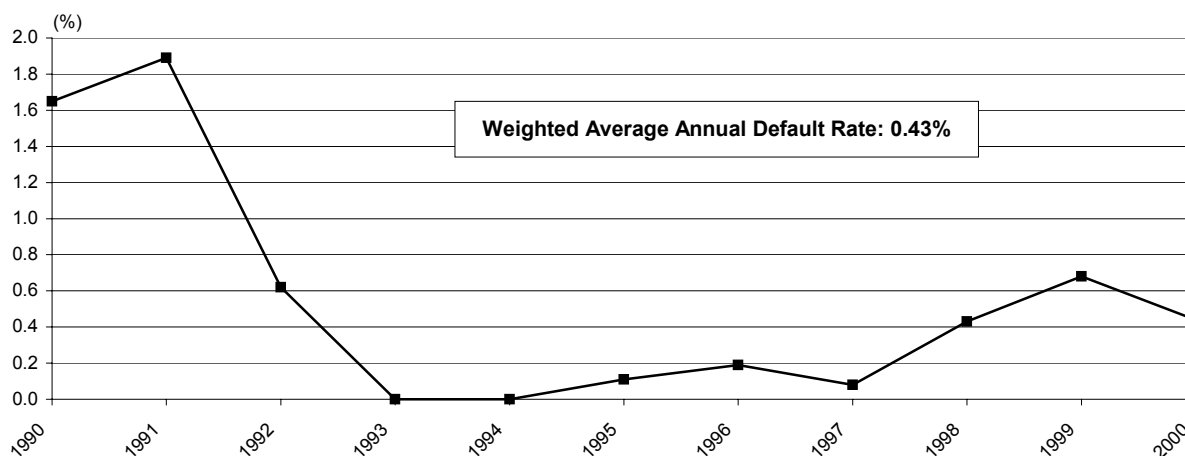
■ Summary

This research report marks the first historical study of Fitch-rated corporate bond defaults, covering the years 1990 through 2000. From Jan. 1, 1990 through Dec. 31, 2000, 49 Fitch-rated issuers defaulted on their long-term debt, out of a total of 2,639 issuers carrying a Fitch rating over the 11-year period. The average annual default rate for all Fitch-rated global corporate obligors was 0.43%. For investment-grade issuers, the average annual default rate was 0.05%, compared with 2.95% for high yield, or speculative-grade, issuers.

The years 1990 and 1991 experienced the highest annual default rates, 1.7% and 1.9%, respectively. This is not surprising considering the economic recession in the U.S. Defaults tapered off rather sharply after 1991 and did not pick up again until 1998, after Russia's default.

The parameters used to calculate Fitch corporate bond default rates are outlined on page 2. The statistical data illustrates how Fitch ratings have performed over time and, more importantly, will give market participants the ability to analyze the probability of default on Fitch-rated corporate debt across various rating categories.

Fitch One-Year Corporate Default Rates



November 8, 2001

Parameters of the Fitch Corporate Bond Default Study

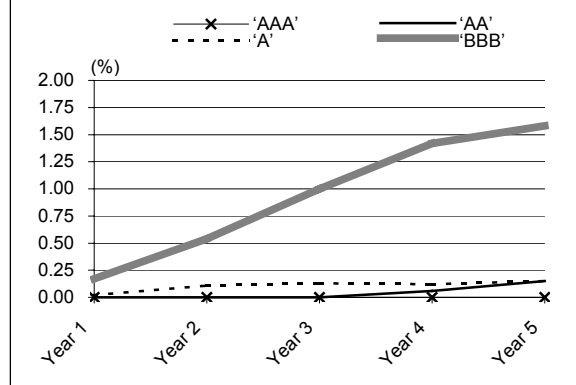
- Includes issuers worldwide of all Fitch publicly rated, corporate long-term debt, encompassing industrials, utilities, insurance, banks, and financial institutions.
- Structured finance, municipal, private placement, and sovereign ratings were not included in the study.
- Issuers with only short-term debt ratings were also excluded from the study.
- Default was defined as failure of an obligor to make timely payment of principal and/or interest and included any bankruptcy filings or distressed exchanges, where bond investors were offered securities with diminished structural or economic terms compared with existing bonds.
- One-year default rates were calculated by dividing the number of defaulted issuers by the number of outstanding rated issuers at the beginning of each respective year.

■ Default Rates

As shown in the table below, summary statistics of average cumulative default rates demonstrate that for relevant rating categories, Fitch default rates were similar to or lower than those reported by other major rating agencies. In general, the study supports the theory that as obligors move down the rating scale they become more vulnerable to default, as witnessed by the higher default rates at the lower end of the rating scale.

The one outlier in the sample was the 'B' credit category, which displayed a much lower default risk than that of 'BB' credits. However, this is not surprising given that Fitch had not rated many high

Average Cumulative Investment-Grade Default Rates



yield issuers in the early 1990s when most of the defaults occurred. As a matter of fact, the 'B' sector represented one of Fitch's smallest rating categories, accounting for only 3.6% of total ratings outstanding for 1990–2000. The pie chart on page 3 illustrates Fitch's rating distribution during 1990–2000.

The average one-year default rate statistics below indicate that the 'CCC' to 'C' category experienced the greatest incidence of default, a 26.3% default rate. The category's average cumulative five-year default rate was 45.7%. On the other end of the rating spectrum, the average cumulative five-year default rate for 'AA' credits was only 0.15%.

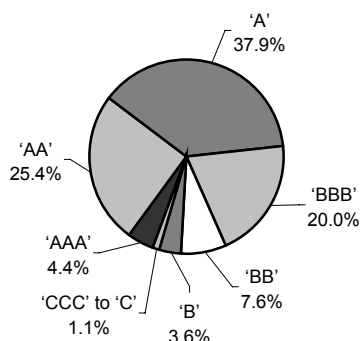
The graph above illustrating average cumulative default rates for investment-grade issuers shows how the risk of default increased as credit quality declined. Lower-rated issuers experienced higher default rates, while higher rated issuers experienced relatively lower default rates. The data also demonstrates that default risk grew exponentially with a decline in credit quality. For example, the data shows that the risk of default for credits rated 'A'

Average Cumulative Default Rates

(%)

	Year 1	Year 2	Year 3	Year 4	Year 5
'AAA'	0.00	0.00	0.00	0.00	0.00
'AA'	0.00	0.00	0.00	0.06	0.15
'A'	0.02	0.11	0.13	0.12	0.15
'BBB'	0.17	0.54	1.00	1.42	1.58
'BB'	1.61	3.79	5.34	4.88	4.55
'B'	0.47	2.01	2.55	2.33	2.37
'CCC' to 'C'	26.26	34.62	37.29	39.62	45.65
Investment Grade	0.05	0.17	0.28	0.38	0.44
High Yield	2.95	5.32	6.56	6.73	7.34
All Corporates	0.43	0.82	1.03	1.09	1.19

Fitch Rating Composition: 1990–2000



was very low in years one through five, with a default rate of 0.02% in year one and a cumulative default rate of 0.15% in year five. In comparison, 'BBB' credits experienced an average default rate of 0.17% in year one but a substantially higher rate of 1.58% in year five.

■ Correlation Between the Economy and Default Rates

The table on page 4 highlights Fitch defaults over the past decade, of which the majority resulted from U.S.-domiciled companies. In fact, as illustrated in the chart below, there was an inverse relationship between U.S. gross domestic product (GDP) growth and one-year default rates for Fitch. During times of economic prosperity, Fitch default rates remained very low, or even non-existent. Likewise, as the U.S. economy weakened, default rates rose. This was particularly evident during the 1990–1991 recession, when U.S. GDP growth contracted by 0.5%. Given the economic downturn, it is not surprising that Fitch default rates peaked at 1.9% during this period.

After the recession of the early 1990s, the U.S. economy boomed, with average annual GDP growth of 3.7% from 1992–2000. During this period, Fitch default rates remained very low, never exceeding the peak 0.68% reported in 1999. Indeed, Fitch did not experience any defaults at all during 1993 and 1994, followed by the default of only one or two issuers over the next few years. It was not until 1998 that defaults started to pick up, with six obligors defaulting, followed by 11 issuers in 1999 and eight issuers in 2000.

Fitch Corporate Bond Default Rates

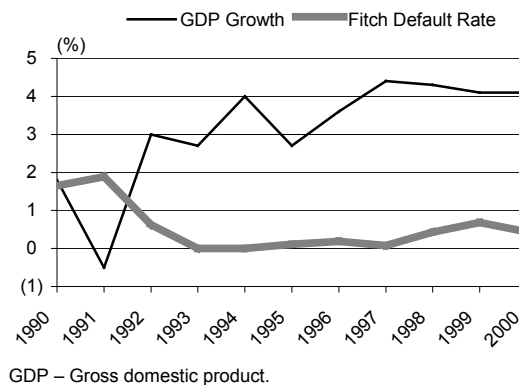
	Number of Defaults	Default Rate (%)
1990	6	1.65
1991	10	1.89
1992	4	0.62
1993	0	0.00
1994	0	0.00
1995	1	0.11
1996	2	0.19
1997	1	0.08
1998	6	0.43
1999	11	0.68
2000	8	0.44

■ Issuer Ratings Defined

Historically, Fitch did not assign issuer ratings. For the purposes of this study, the creation of issuer ratings was necessary so that rating performance could be analyzed from an obligor level, as opposed to a debt instrument level. Fitch used the rating on senior unsecured debt as a proxy for the issuer rating for any company with publicly rated long-term debt. An algorithm was created to notch accordingly if senior unsecured debt was not available. In instances where an issuer only had preferred trust or capital securities and no true debt ratings outstanding, the issuer was not included in the study. Similarly, if an issuer only had short-term debt outstanding, it too was excluded from the study. This was done to get an accurate count of the number of issuers that could potentially default on their outstanding long-term debt obligations.

As stated previously, all Fitch publicly rated corporate long-term debt from 1990–2000 was included in the study, as well as all rating coverage picked up through Fitch's various mergers.

U.S. GDP Growth vs. Fitch One-Year Default Rates



Fitch Defaults: 1990–2000

	Issuer Name	Rating at Beginning of Year	Industry Sector
1990	Allied Stores	'CCC'	Retail
	Ames Department Stores, Inc.	'CCC'	Retail
	Bank of New England Corporation	'CCC'	Banking and Finance
	Federated Department Stores, Inc.	'CCC'	Retail
	Franklin Savings Association	'BB+'	Banking and Finance
	Greyhound Lines, Inc.	'CCC'	Transportation
1991	Carter Hawley Hale Stores, Inc.	'BB-'	Retail
	Columbia Energy Group	'BBB'	Utilities
	Columbia Savings and Loan Association	'CCC'	Banking and Finance
	Continental Airlines Holdings, Inc.	'CCC'	Airlines
	Continental Airlines, Inc.	'CCC'	Airlines
	National Gypsum Company	'CCC'	Buildings and Materials
	Orion Pictures Corporation	'CCC'	Broadcasting and Media
	People Express	'CCC'	Airlines
	Southeast Banking Corporation	'BB+'	Banking and Finance
	USG Corporation	'CCC'	Buildings and Materials
1992	Adience Inc.	'CCC'	Industrials/Manufacturing
	El Paso Electric Co.	'B-'	Utilities
	First City Financial Corp.	'CCC'	Banking and Finance
	R.H. Macy Co.	'CCC+'	Retail
1995	Dow Corning Corporation	'BBB-'	Chemicals
1996	Grupo Simec, S.A. de C.V.	'CCC'	Metals and Mining
	Kapital Haus, S.A. de C.V.	'CCC'	Banking and Finance
1997	First Merchants Acceptance Corp.	'BB+'	Banking and Finance
1998	Chilesat S.A.	'BBB-'	Telecommunications
	CRIIMI MAE, Inc.	'BB'	Banking and Finance
	P.T. Polysindo Eka Perkasa	'BB'	Textiles and Furniture
	Philip Services Corp.	'BB+'	Metals and Mining
	Polysindo International Finance	'BB'	Banking and Finance
	Reliance Acceptance Group, Inc.	'CCC'	Insurance
1999	ARM Financial Group, Inc.	'A-'	Insurance
	Bufete Industrial, S.A.	'BB-'	Industrials/Manufacturing
	Grupo Tribasa, S.A. de C.V.	'BB-'	Buildings and Materials
	Hidroelectrica Piedra del Aguila S.A. (HPDA)	'BB'	Utilities
	Loewen Group International, Inc.	'BB-'	Miscellaneous
	Mobile Energy Services Co., L.L.C.	'CCC'	Energy
	P.T. Inti Indorayon Utama	'CCC'	Paper and Forest Products
	SBS-AGRO Group	'C'	Banking and Finance
	Service Merchandise Company, Inc.	'CCC'	Retail
	United Companies Financial Corp.	'B'	Banking and Finance
	Zenith Electronics Corporation	'CCC'	Computers and Electronics
2000	ContiFinancial Corp.	'C'	Banking and Finance
	Daewoo Corporation	'CCC'	Automotive
	Heilig-Meyers Company	'BB'	Retail
	MacSaver Financial Services	'BB'	Banking and Finance
	Owens Corning	'BBB-'	Buildings and Materials
	Reliance Group Holdings, Inc.	'BB+'	Insurance
	Sunterra Corporation	'BB+'	Gaming, Lodging, and Restaurants
	Supercanal Holding S.A.	'CCC'	Cable

Therefore, additional rating coverage of corporate issuers by IBCA, Duff and Phelps Credit Rating Company, and Thompson's BankWatch were included in the data sample, providing they met the same criteria. As a result of this series of strategic mergers and acquisitions, combined with increased market penetration, Fitch experienced tremendous growth over the past decade. For perspective, Fitch rated nearly 2,300 corporate issuers at the beginning

of 2000, a six-fold increase over the less than 400 corporate issuers rated at the beginning of 1990.

■ Default Rate Methodology

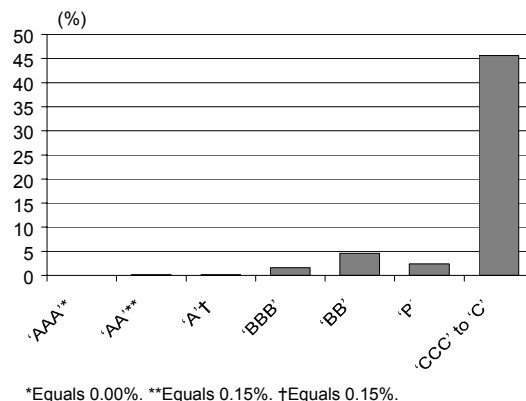
One-year default rates were calculated by dividing the number of defaulted issuers by the number of outstanding rated issuers at the beginning of each respective year. To calculate multiyear default rates, cohorts were created for each year from 1990–2000. These cohorts remained fixed over time, with the

rating performance of all issuers in the cohort tracked and defaults noted accordingly. Further, for the purposes of calculating both average one-year and average multiyear default rates, default rates for each year were weighted by the number of issuers outstanding for each rating category at the beginning of the year or cohort. This was done in order to give a fair evaluation of rating performance, since as noted above, the number of corporate issuers rated by Fitch grew substantially over the 11-year period.

For example, the one-year average default rate for each rating category represents a weighted average of the annual default rate for each of the years 1990–2000. In similar fashion, the cumulative two-year default rate is a weighted average of the two-year default rates for fixed cohorts beginning with 1990 through 1999, the latter representing the last year for which a cumulative two-year default rate can be tracked. The same methodology was utilized for the three-year, four-year, and five-year rates.

It is worth noting that due to the limited number of observations, the statistics are richer and more meaningful for one to three years. As illustrated in the table at the bottom of page 2, default rates appear to peak for the ‘BB’ and ‘B’ categories in year three and slightly decline thereafter. The reason for this is that defaults for those two rating categories were clustered in the early and late 1990s. When

Average Cumulative Five-Year Default Rates



calculating the four-year and five-year rates, some of the higher default years in the late 1990s are excluded; therefore, average cumulative default rates appear to decline in years four and five. This is a statistical anomaly that will disappear as the number of observation years grows. For example, in contrast to the average one-year default rates, which are derived from 11 observation years (1990–2000), the average five-year default rates are constructed using seven cohorts (1990–1996), since 1996 is the last year for which cumulative five-year default rates can be tracked.

Copyright © 2001 by Fitch, Inc. and Fitch Ratings, Ltd. and its subsidiaries. One State Street Plaza, NY, NY 10004.

Telephone: 1-800-753-4824, (212) 908-0500. Fax: (212) 480-4435. Reproduction or retransmission in whole or in part is prohibited except by permission. All rights reserved. All of the information contained herein is based on information obtained from issuers, other obligors, underwriters, and other sources Fitch believes to be reliable. Fitch does not audit or verify the truth or accuracy of any such information. As a result, the information in this report is provided “as is” without any representation or warranty of any kind. A Fitch rating is an opinion as to the creditworthiness of a security. The rating does not address the risk of loss due to risks other than credit risk, unless such risk is specifically mentioned. Fitch is not engaged in the offer or sale of any security. A report providing a Fitch rating is neither a prospectus nor a substitute for the information assembled, verified, and presented to investors by the issuer and its agents in connection with the sale of the securities. Ratings may be changed, suspended, or withdrawn at any time for any reason at the sole discretion of Fitch. Fitch does not provide investment advice of any sort. Ratings are not a recommendation to buy, sell, or hold any security. Ratings do not comment on the adequacy of market price, the suitability of any security for a particular investor, or the tax-exempt nature or taxability of payments made in respect to any security. Fitch receives fees from issuers, insurers, guarantors, other obligors, and underwriters for rating securities. Such fees generally vary from US\$1,000 to US\$750,000 (or the applicable currency equivalent) per issue. In certain cases, Fitch will rate all or a number of issues issued by a particular issuer, or insured or guaranteed by a particular insurer or guarantor, for a single annual fee. Such fees are expected to vary from US\$10,000 to US\$1,500,000 (or the applicable currency equivalent). The assignment, publication, or dissemination of a rating by Fitch shall not constitute a consent by Fitch to use its name as an expert in connection with any registration statement filed under the United States securities laws, the Financial Services Act of 1986 of Great Britain, or the securities laws of any particular jurisdiction. Due to the relative efficiency of electronic publishing and distribution, Fitch research may be available to electronic subscribers up to three days earlier than to print subscribers.